INSANITY FROM BRIGHT'S DISEASE.

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BRIGHT'S DISEASE as a factor in insanity is by no means a novelty, yet the literature on this subject is, on the whole, rather scanty. Besides, in many of the cases reported the connection between the renal and mental phenomena is not quite clear, and in others it seems hardly justifiable to qualify the manifestations of perverted mentality observed, as insanity.

Generally speaking the insanity of Bright's disease is that of uræmia, and "uræmic insanity" would perhaps be a more appropriate term. It is, indeed, generally observed only in the graver or fatal forms of nephritis, acute or chronic, in which the functions of the kidneys are impaired to such a degree that the greater part of the excrementitious substances normally eliminated by these glands is retained. Instead of the characteristic symptoms of uræmia, viz.: headache, vomiting and coma, a psychosis, either single or complicated, with one or the other uræmic manifestations is set up.

Whether in such cases, it is the retained urea alone that produces the morbid mental states, or whether there are any of the non-excreted leucomanies which are normally formed by the splitting up of the albuminoids, responsible for the disordered brain functions is, at present, an open question. It is held by some that in the common form of uræmia, ammonia, by others,* the potash salts cause the

* N. Feltz and E. Ritter De l'uremie experimentale, Paris, 1881.

grave nerve symptoms. However this may be, it is in the highest degree probable that in uræmic insanity it is the urea that so peculiarly influences and morbidly affects the highest brain centres, although experimentally it has been demonstrated that this poison when injected into animals whose renal arteries have been ligated, gives rise only to convulsions and stupor.

There is a certain similarity of chemical composition between urea and those poisonous albuminoid bodies, the ptomaines, which according to the present state of knowledge are looked upon as being at least in part instrumental in bringing about the delirium and mental aberations of many of the acute infectious diseases, *e.g.* typhoid fever, pneumonia, etc. It is true that generally the brain symptoms in those diseases keep in proportion to the rise and fall of the temperature, and that over-heating is the principal cause of disordered brain action, but there are cases of febrile disease in which the latter is entirely disproportionate to the moderately high temperature. Such discrepancy is, for instance, not infrequently seen in certain cases of typhoid fever, in which the sensorium is more deeply affected than the fever-curve would warrant.

Such cases are liable to be mistaken for insanity, the typhoid element, owing to the irregular or insignificant elevation of temperature, being entirely overlooked, and it may happen that patients of this class are sent to an insane asylum. I know of one instance in which a superintendent of a lunatic asylum, being in the first stage of typhoid, with strong predominance of cerebral symptoms, was committed by his assistants to his own institution.

In these cases as well as in uræmic insanity, it is a toxic akaloid like principle, a ptomaine in the former, and probably urea in the latter, that determines for some unknown reason the preponderance of the mental over the other usual disturbances.

So far only one case has come under my observation in which a causal connection between an exacerbation of renal disease, *i.e.* accumulation of urea in the blood, and *indubitable* insanity could be clearly proven.

CASE I.—M. C., a maiden lady, æt. 38, coming of healthy stock, had rheumatism followed by chorea at 14. Since this time she has periodically suffered from palpitation of the heart, sleeplessness and general nervousness. Four years ago she fell into ice-cold water and claims that from that time on her kidneys have been out of order, that she had to get up at night to urinate three or four times, and that the quantity voided has been very irregular, scanty at times, and excessive at others. Her urine had been examined by several physicians and a more or less considerable amount of albumen had been found. There never was any œdema. The present attack came on after exposure to cold and dampness, the secretion of the urine became exceedingly scanty; after a few days she grew morose and fretful; she did not sleep for several nights, her irritability and restlessness increasing constantly until a week after the exposure she had a maniacal attack. For a day and a night she shouted, gesticulated and sang religious songs, beating for hours the time with hands and feet. On the day following she began using obscene language, swore at the members of her family and tore her clothes. This lasted about two days when a period of depression set it, during which she wept a great deal, accused herself of base and mean actions, of having caused the death of her mother, and of having brought utter disgrace and ruin on her family and the whole neighborhood. During this melancholic stage there were twitchings of the muscles of the face and extremities. On the ninth day of her disease she attempted to cut her tongue out with a table knife; a copious hemorrhage resulted, which was stopped with a great deal of difficulty after the patient had become almost exsanguinated. She then slept for nine hours uninterruptedly. When she awoke she was in a dazed condition, but took nourishment freely and gave rational answers to simple questions. In the course of two days her mind became perfectly clear; she remembered dimly some of the events that had taken place, but had absolutely no recollection of her attempt at self mutilation. She made a rapid recovery.

From the third day of her sickness until sometime after

her restoration to health I made daily examinations of her urine. In the mean its specific gravity was 1015; it was strongly acid, containing a large quantity of albumen, hyaline and epithelial casts, pus-cells and blood corpuscles in small number. The daily amount of urine voided could not be ascertained during the first nine days of her sickness, the patient passing it most of the time involuntarily, but it was far below the normal. The casts and the albumen, though diminished in amount, could be demonstrated for three weeks after she recovered her senses, when the urine seemed to become perfectly normal. During the maniacal excitement there had been a slight rise of temperature, after this it had been normal and even sub-normal. Neither vomiting nor headache had been complained of. Pilocarpine, elaterium, and later, digitaline had been administered without any apparent benefit.

I am strongly inclined to believe that the sudden termination of the attack is due to the copious hemorrhage. Some practitioners are still treating uræmia, especially when appearing under the form of puerperal eclampsia, with the lancet, and, apparently, with good results, especially in persons of full habit, and I am of the opinion that in some cases of insanity due to uræmia, bleeding is the proper remedy in spite of the fact that such a procedure would not be in harmony with the teachings of modern psychiatry, and that very likely it would be branded as a return to antiquated medical barbarism. But it appears to me rational and proper to remove as quickly as possible the retained products of metabolism, a powerful nerve poison, which by its continued action on the nerve centres, renders all remedies worthless.

Cases of real insanity of uræmic origin are, on the whole, of rare occurrence; as a rule the mental disorder consists of elementary deliria accompanied by hallucinations. The following case may serve as an example.

CASE 2.—C. B., æt. 26, a plumber, habitual, hard drinker, is suddenly taken with what appears to be inflammatory articular rheumatism; feet and ankles are swollen, red and painful; at the same time there is severe pain in the back; the left tonsil, parotid and submaxillary glands are swollen;

the gums look inflamed and are extremely turgid; temperature 100°. His legs frequently twitch; whenever he tries to walk there is a convulsive tremor through the whole body and a general spastic condition of all the muscles; he walks on tip-toe, grating the floor with the ball of the foot; can not bring down the heel; the head is drawn backwards, the spine in a lordotic state. Several times a day he gets "rigid spells," even in bed; there is opisthotonus, his legs and hands are stiff and extended, and he becomes temporarily aphasic. The superficial reflexes)plantar, cremasteric, and abdominal), normal; knee jerk absent; hyperæsthesia of epigastric region and of the lower third of thorax. The examination of the urine which is scanty at times and copious at others, reveals an enormous amount of albumen, of hyaline and blood casts and renal epithlia in a state of fatty degeneration, or impregnated with blood-pigment; the color of the urine is of an intense reddish-brown; it emits a fetid odor and abounds, even when freshly voided, in bacteria, the nature of which was, however, not determined. His mind wandered, although he could be easily roused to temporary consciousness, he was traveling constantly, driving horses, etc., he had hallucinations of sight and hearing; talked to imaginary persons; could be kept in bed with the greatest difficulty; when interfered with in his attempts to leave the bed he became violent. Six leeches were applied to the nape of the neck, and shortly afterwards a general oozing hemorrhage set in; he bled from the gums, the nose and intestines; the leech bites oozed for several days in spite of the efforts to stop the bleeding. His symptoms, however, grew better from day to day; his mind became clear, the tremors and spastic states of the muscles disappeared; the urine was free from albumen and contained only few casts and he made several successful attempts at walking. The improvement lasted three weeks when his mind again became clouded. Though his temperature was normal his mind was wandering; he was constantly driving horses, but was always on the wrong road. At times he would be maniacal, try to break things, run off, etc. The urine contained an increased amount of casts and a greater quantity

of albumen ; he died in coma eight weeks after the inception of the disease. Within the last four weeks the temperature had been normal and subnormal. Diagnosis ; acute parenchymatous nephritis. No post-mortem.

The clinical picture of this case was in the beginning, that of an infectious disease, perhaps rheumatic in origin, and complicated with some other morbid elements of bacterian nature, thus constituting a mixed infection.

I have reported this case at some length because it shows the usual type of mental disorder in uræmic conditions and is of pathogenous interest in so far as it exemplifies the truth of the assertion that Bright's disease is in its inception frequently a general vascular lesion. The general hemorrhage proved it. Had this patient recovered from the acute attack, the probability is that the remnant of the disease would have been localized in the kidney as one or the other form of Bright's disease.

The most insidious of all forms of nephritis and one that frequently remains unrecognized as a cause of mental disturbance, is the shrunken kidney. Being usually chronic in nature from the beginning, the symptoms are often vague and indistinct, and it runs its fatally progressive course under the guise of neurasthenia, neuralgia, etc., until, all at once, grave disorder of the mind sets in and the patient lands in the insane asylum.

Within the last six weeks three cases of this kind were received at the St. Vincent's Institution of St. Louis, all of which were declared insane by the attending physicians ; the urine had not been examined. I believe them of sufficient interest and importance to briefly report them as follows :

CASE 3.—Mrs. H., æt. 48, widow of a physician; of robust build. Early in life, when six or seven years old, she ran a piece of shingle into the right temporal bone, the wound healed and a slight tumor formed at the site of injury, which, about twenty years ago, gave rise to attacks of neuralgia. The tumor was removed about fifteen years back and two splinters were taken out. Fourteen years ago she had an attack of puerperal mania from which she recovered in the

course of several weeks. Six years latter she suffered for weeks from rheumatism and intense insomnia. This was followed by an attack of outspoken melancholia lasting several months. Three weeks before her admission to the institution she went through a railroad accident with all of its excitement and exposure. For weeks she had been under great mental strain, owing to business affairs. Several days after the accident she was taken with a tonsillitis; great pain in the limbs, took (as is alleged) an overdose of morphine and chloral and became delirious without fever. She imagined she was on board a ship, saw fish coming towards her and talking to her, had visions of terrible faces and monsters threatening her; voided urine involuntarily, etc. A few days after admission to the hospital died of uræmic coma. The urine contained a moderate amount of albumen and great masses of hyaline and epithelial casts and a few pus corpuscles. Diagonis: shrunken kindey. Bright's disease had been "suspected" for a number of years by her husband, who was a physician. The probability is that her previous attacks of genuine insanity were due to the same cause as the last one, namely, to uræmia, and it may not be amiss to state at this place that in regard to puerperal mania, I have been twice in a position to corroborate and verify the statement of Scott Doncin, who maintains that there is a renal form of puerperal insanity. In two cases that came under my observation, albumen and casts could be demonstrated and the attack diminished in severity and disappeared together with the renal symptoms.

CASE 4 is similiar to the preceding one.

Mrs. F. S., æt. 55. No heredity. She is brought in a comatose condition to the institution. It is learned that for the last ten years she has been subject to spells of sciatica of great severity. About three weeks before her admission she was taken with an exceptionally severe one; strong doses of morphine were administered hypodermically and chloral given for about ten days to insure sleep, when her family began to think that she "talked funny" and that her mind was not quite right. She imagined that she was in a strange place, wanted to go home, although she was in her

own room, called for her husband although he was constantly present, and gave other evidence which showed that she utterly failed to recognize her surroundings. Being very restless and becoming violent she was put on the train under a dose of chloral and shipped to St. Louis. She died in uræmic coma about one week after her admission to the institution, never having recovered consciousness although at times she could be roused and recognized her friends. On examination the urine (specific gravity 1030) was found to contain "mucous casts" (so-called), granular casts, epithelial cells in a stage of fatty degeneration, pus corpuscles and blood casts.

The interest in this case centres on the fact that the patient had been subject to sciatica. This is frequently one of the signs of shrunken kidney, and so prominent is it that often the original trouble, *i.e.* Bright's disease, is entirely overlooked. Among other similar cases I remember that of a St. Louis physician, who died several months ago with the symptoms of uræmia. He had for number of years been subject to occasional attacks of lumbago accompanied by sciatica. During the last of these he dosed himself with morphine to the extent of almost poisoning himself. From this time on grave cerebral symptoms developed, whilst the temperature remained most of the time normal. He became very violent, broke his bed, imagined to be on an ocean steamer, etc.

It was thought by the attending physician that there was some obscure form of brain and spinal disease. He lived in this deranged mental condition about eight weeks from the beginning of the sciatica. After death his brain was found to be slightly odematous, corresponding to the usual pathological condition of that organ in uræmia. Unfortunately the kidneys were not examined in this case, but in the light of my recent experience, I am morally certain that the urine as well as the kidneys would have revealed the true state of affairs, *i.e.*, uræmic poisoning.

CASE 5.—L., an alcoholic of long standing, becomes suddenly insane after the opening of an intra-muscular abscess situated about one and a half inches below the apex

of the heart. He is admitted to the St. Vincent's on a certificate of insanity. There is cirrhosis of the liver, ascites and considerable exudation into the pleural cavity. His urine is loaded with albumen, hyaline and epithelial casts, renal epithelia. Few pus corpuscles. He has ideas of persecution, believes that the attendants in the institution are after his money; that robbers are in the house and he continually attempts to bar the door of his room to keep them out, etc. At the hospital whence he came, he had become unmanageable. No fever. Death from coma. No post-mortem.

For the sake of completeness, I will briefly mention two cases which I had of late an opportunity of observing at the City Hospital of this city.

CASE 6.—A negro about 35 years of age, an alcoholic and epileptic, had been time and again, at varying intervals, in the hospital for treatment of his epileptic seizures. It was known that he had Bright's disease. During the last six months he had had no epileptic attack. He was brought into the hospital in a stuporous condition, from which he could not be roused. He remained in this state for several days when, suddenly, one night he became unmanageable, tried to break the furniture, made speeches, declaring that he was a free born American citizen, entitled to all the rights and privileges of such, that he could whip any man in town, etc., in short, he was typical maniac. No fever. About one week after admission he died comatose. Post-mortem revealed as a principal lesions: cirrhosis of liver and kidneys.

CASE 7.—S., a colored woman, æt. 50, had been admitted to the City Hospital without a history about one week previous to my examination; she was aphasic, could not pronounce a word nor understand the meaning of one; whether there was word-blindness or agraphia could not be made out, since the patient was illiterate. On being asked her name she invariably answered Til-lil-lil-lil. This was the only verbal expression that could be elicited to any question proposed. She had to be spoken to several times before she would try to answer. She was silly and had a giggling laugh without motive. No paralysis on right side. Temperature 97°. Urine specific gravity 1015. Pupils contrac-

ted and sluggish of reaction; urine and feces were passed involuntarily, slight tremor at times in hands and feet; casts, hyaline and epithelial, pus corpuscles, albumen, hypertrophy of left heart. A few days later she became more attentive, could pronounce her name (Martha Smith) though with difficulty, execute simple movements with her hands when told to do so, and gave other evidences of returning intelligence. It was now quite clear that she was suffering with motor aphasia, since she became impatient and irritated or laughed at herself whenever she tried to pronounce a word without success; after she had mastered the pronunciation of a word, she would repeat it several times; understood questions better. A few days later a hemiparesis of the right side supervened which did not last, however, very long. Finally she got well enough to help about the ward, which she did willingly. But the improvement did not last very long; she became destructive, uttered threats and seemed to have homicidal tendencies; everything she could get a hold of she would throw into the water-closet, etc. She was then transferred to the City Insane Asylum.

REMARKS.

There is no doubt as to the existence of renal affection in all the cases reported above, nor can there be any question as to the cause of the mental derangement observed in these patients, although there was in none of them the usually observed symptom-grouping of uræmia, etc., viz., headache, vomiting, and convulsions. The absence seems in a measure to be characteristic of uræmic insanity, and reminds one of the physical equivalent of the epileptic attack.

It might be questioned whether the morbid mental manifestations in all the cases detailed above can be legitimately classed with insanity. There is in a majority of them a close resemblance to the delirium of alcoholic intoxication. With the exception of cases I. and VII., this delirium is of an elementary character, and only in case V., barring case I., which is one of equivocal insanity, is there a feeble attempt at systematization of ideas begotten by delirium. Most

doubtful is case VI., owing to the complication of alcoholism and possibly idiopathic epilepsy.

But although nobody would classify the drunken man or him that has an attack of delirium tremens with the insane, we know that etiologically, though not ontologically, there is such a thing as alcoholic insanity, as there is one from the continued abuse of drugs, morphine, hashish, and cocaine, for instance. Urea retained for a longer period in the blood seems to act in a manner similar to these substances on the highest brain-centres, producing perversion of thought, feeling, and action; and the absence of fever and a degree of chronicity of the mental change will warrant the application of the term *insanity* to such cases.

But as in alcoholic or the other intoxication insanities, so in the uræmic variety, there is no type; it may give rise to all kinds of mental abnormalities, from the most expansive forms down to imbecility.

That there must be a predisposition to mental disorder in the individual affected by uræmia would seem to be a postulate of common logic; and it might be justly claimed that, as in ordinary cases of insanity, there must be in the uræmic kind, in addition to the exciting cause, a remote one which is of much greater pathogenic importance, namely, hereditary or acquired predisposition. With the exception of case III., which looks suspicious on account of the injury of the head, and case I. (chorea), no predisposition or heredity could be made out. (Owing to the absence of any record whatsoever, the cases VI. and VII. are not counted.)

Yet, judging from common experience in matters of insanity, and taking into consideration the, on the whole, deficient histories that were given, and the well-known tendency on the part of the relatives to deny insanity in the family, I am inclined to believe that my patients, if their and their families' histories had been known, would have been found to be tainted; at all events, considering the different effect on different individuals of the same poison, there must be a preponderance of the insane over the convulsive temperament. Even the alcoholic intoxica-

tion, the prototype of toxic insanities, demonstrates clearly the different modes in which different persons are affected according to their organizations and idiosyncracies. One becomes maniacal, another melancholic, a third has convulsions, and a fourth one is at once rendered stuporous and even unconscious.

Besides these resemblances to the alcoholic delirium, the uræmic attacks reminded me often of post-epileptic insanity, even in those cases that were free from convulsions.

As regards the aphasia and transitory hemiparesis in case VII., there is a possibility of holding the uræmia alone responsible for such disturbance, although there is a possibility that it was produced by a coarse lesion, viz., circumscribed hæmorrhage, or thrombosis, the result of general vascular disease such as is common in Bright's disease.

Brieger (Klin. Beob. Charité Annalen, 1882, p. 237), saw a case of uræmia in which there were convulsions followed by a psychosis lasting eighteen hours. Amnesic aphasia terminated the attack. The patient got well.

I did not propose to write an exhaustive treatise on insanity from Bright's disease, and consequently refrain from enumerating and reviewing the literature on the subject. My purpose in publishing those cases that came under my observation was to urge the necessity of examining the urine of such patients as become suddenly insane, especially when the insanity partakes of a delirious nature and when alcoholism is to be excluded. I think that many a case of uræmia has been put down as mania without the correct diagnosis as to the cause having been made.

An exclusively chemical test is, of course, not sufficient; albuminuria is not Bright's disease. With the microscope alone rests the final decision. That even this instrument fails in some cases, for a time, to reveal the true state of affairs, notably in contracted kidney, is too well known to require discussion.

From a therapeutical point of view the importance of an early diagnosis is obvious. A timely regulation of the diet may turn the scales of the balance in favor of recovery, at least in the more acute forms of the disease.

From the clinical course of cases I. and II., I consider myself justified in concluding that in certain cases such incisive measure as blood-letting is indicated. That here the strictest individualization is required is self-evident.

Again, in case of death, it is of great import to the family to know of what form of insanity their relative died. As regards the social and business status and record of such a family in the community, it makes a great difference whether the death-certificate reads, "Mania," or whether the cause of death is given as "Uræmia."

Finally, a correct diagnosis will sometimes serve to keep a patient out of an insane asylum, and will cause him to be treated at home, on the same ground as a delirious typhoid fever patient receives home or general hospital, but not an asylum treatment. This remark does not imply that all patients suffering from uræmic insanity ought to be treated outside an asylum.